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National Health Insurance Scheme Adoption and Diffusion Theory among Healthcare Consumers in Oyo State, Nigeria

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Abstract

All countries face challenges in expanding her healthcare coverage. NHIS was introduced as an alternative source of funding to achieve universal health coverage. This study examined the adoption of NHIS among healthcare consumers, determined the attributes and joint relationship between attributes and attitudes of healthcare consumers in Oyo State. The researcher asked to what extent the attributes of diffusion of innovation as a whole jointly affect the attitudes of healthcare consumers. The hypothesis formulated that diffusion attributes do not jointly predict consumer's attitudes towards adoption of NHIS in Oyo State. Simple random sampling technique was adopted to have a proportional representation of 1527 respondents from the population of 45,000 employees of federal agencies and a private company. Data generated were analyzed using descriptive and inferential statistics analysis at 0.05 significant levels. Findings revealed that the hypothesis jointly predict healthcare consumers attitude ($F_{(5,391)} = 39339.954$; $R = .996$, $R^2 = .992$, $Adj. R^2 = .992$; $P < .05$). The study concluded that the availability of these five attributes interactions and combinations speed up the innovation-diffusion process of NHIS in Oyo State. It is recommended that healthcare consumers' lifestyles, values and other compatibility attributes should be strongly used to motivate and accelerate the adoption of NHIS in Oyo State, Nigeria.

Keywords: Innovations, diffusion, healthcare, attributes and attitudes

1. Introduction

In Nigeria, it is perceived that the quality of health service facilities is very poor. At all levels in the federal, state or local governments, health services facilities are dilapidated or non-functional. Many citizens are exposed to avoidable deaths daily because they cannot afford the cost of medical insurance. The need therefore to provide for a platform that would guarantee accessible and universal healthcare coverage was necessitated through the conception of the National Health Insurance Scheme (NHIS). The hope of the average Nigerian to have a reliable and affordable healthcare delivery system was brightened with the take-off of the NHIS in 1999 and it became operational on 6th June, 2005. The poor healthcare services at all levels are buttressed by the World Health Organization's report on the performance of healthcare systems which ranked the country 187th position out of 191 in 2000 (World Health Organisation (WHO), 2000).

According to WHO (2005), the healthcare systems became worse when Nigeria was ranked 197 out of 200 nations in the world. The life expectancy of the citizens was put at forty-eight years for males and fifty years for females. In the life expectancy estimation, Nigeria only ranked higher than five countries: Sierra Leone, Afghanistan, Zimbabwe, Zambia and Lesotho. The WHO report further stated that Nigeria accounts for ten percent of global mortality figure with 59,000 women dying annually from pregnancy and child birth. It adds that for every maternal death, thirty others suffer long-term disabilities while forty percent (800,000) of global obstetric fistulas occur in Nigeria. According to the report of WHO, the health situation in the country had been so deplorable because only thirty nine percent of births are delivered by skilled health professionals. It also states further that the risk of a woman dying from child birth is one in eighteen cases in Nigeria as compared to one in sixty one for all developing countries and one in eight hundred in developed countries. It adds that only twenty three percent of children between the ages of twelve and twenty three years received full immunization injections against childhood killer diseases.

The United Nations Population Fund (2011) in her own report on the state of the World's Midwifery stated that Nigeria's maternal mortality rate per 100,000 births in 2010 was 840. This was compared with 608.3 in 2008 and 473.4 in 1990. NHIS was launched with the major aim of improving accessibility and equity in healthcare delivery, yet, the scheme suffered a long lag between conceptions and implementation which was partly due to the opposition of healthcare professionals, administrators and even the general public in adopting the social health innovation. Rogers (1995) opined that media as well as interpersonal contacts provide information and influenced the opinion and judgment of consumers. Green (2007) argued that innovation occurs through four stages: invention, diffusion through social system, time and consequences.

The Nigerian health sector has largely been based on a fee-for-service system which is principally financed by the government. External loans and grants in form of technical assistance and free drugs especially for preventive services are

common in Nigeria. The global funds for HIV/AIDS, Malaria and Tuberculosis campaigns as well as immunization are also supported by donor agencies. The fee for service system takes so much from the common man or woman that leaves him or her unprepared for most medical expense; yet, the common man or woman is yet to get the best of healthcare services in Nigeria. As a result of the possibility of very high and unpredictable medical costs, many users of the fee-for-service system arrange cover through private insurance schemes where the risk of illness is pooled among the insured groups (Sanusi & Awe, 2009).

The objective of the study is to examine the adoption of National Health Insurance Scheme (NHIS) and the application of diffusion theory among the healthcare consumers in Oyo State, Nigeria.

2. Statement of the Problem

In Nigeria today, healthcare consumers are daily exposed to avoidable deaths because they do not have medical insurance that can cater for them in a period of emergency. Most healthcare consumers have to pay for services or drugs that they cannot afford. Their inability to do so could lead to avoidable deaths. Therefore, the need to provide a platform that would guarantee accessible and affordable universal healthcare coverage in every Nigerian citizen through the pooling of funds from different sectors of the economy necessitated the conception of the National Health Insurance Scheme (NHIS).

According to WHO (2017), Nigeria's health system was ranked 178 out of 192. Life expectancy was put at 54.7 years for male and 55.7 years for female while the average life expectancy for Nigerians is now 55 years for both genders. Nigeria's estimated maternal mortality ratio (MMR) per 100,000 live births in 2015 is 814 while birth attended by skilled health personnel in 2013-2017 is 43 percent. Nigeria is also the second largest contributor to maternal mortality worldwide after India (African Population and Health Research Centre, 2016). One Nigerian woman dies every 13 minutes, that is, 109 women are dying each day from preventable causes related to pregnancy and childbirth. For each death, there are estimated 30 to 50 women who will experience life-long conditions and disabilities such as obstetric fistula. In total, about 500 women each day die or face serious and lasting health consequences. Most of these deaths and health consequences are, however, preventable. Only twenty three percent of children between the ages of twelve to twenty three months receive full course of immunization against childhood killer diseases.

Nigeria continues to fare badly in global health development indicators as it was ranked 157 out of 189 countries surveyed in 2017 by the United Nations Development Programme (UNDP, 2018) The Human Development Index (HDI) was 0.532 which put Nigeria in the low human development. The life expectancy for female and male was 54.7 and 53.1 years which was by far too low compared with Congo Democratic Republic and Ethiopia with 61.5 and 58.5 years for female and male and 67.8 and 64.4 years for female and male respectively. The two countries ranked 176 and 173 respectively. The reason may not be unconnected with the fact that the country is plagued with many health challenges ranging from health financing, excessive dependence and pressure on government provided health facilities, dwindling funding of healthcare in the face of rising costs, poor integration of private health facilities in the nation's healthcare delivery system and overwhelming dependence on out-of-pocket expenses to purchase healthcare services. Critical observers in the health industry have maintained that without a focused scheme in place, many Nigerians will continue to struggle to pay medical expenses on their own. And the country's health indices will continue to drop from bad to worse. Hence, there is the need to sustain the scheme.

In view of the above challenges in the expansion of healthcare systems in Nigeria, there are no doubt that the establishment of NHIS will quicken the adoption of healthcare consumers' through diffusion of innovation theory. Understanding the degree to which an innovation is diffused and perceived among healthcare consumers by all the three-tier of governments, health management organizations and public health providers will go a long way to increase the number of enrollees and improved healthcare serves to Nigerian citizens.

3. Conceptual Issues

Edeh and Udoikah (2015) defined health services as a range of health benefits received by the beneficiary for a certain payment and with the use of certain goods. The service was defined as an activity provided by one party to another and it is considered a concrete basis not resulting in any property. According to the (WHO 2000), health is a state of complete physical, mental and social well-being and not just the absence of disease or infirmity. O'brien (2003) opined that health insurance is the pooling of resources mechanism to accumulate health assets on behalf of a population. By pooling of resources, the financial and health risks are spread and distributed among the population. The financial resources are no longer tied to a particular contributor as a result of the pooling mechanism. The essence of health insurance therefore is the pooling of funds and spreading the risk for illness and financing. Health insurance as a means of promoting universal health coverage has attracted considerable interest in the past.

4. Forms of Health Insurance Scheme

Health insurance comes in different forms which are mainly defined by the source of financing for the insurance premiums. The forms of health insurance scheme identified by Dutta and Hongoro (2013) are:

4.1. National Health Insurance

This is government-managed health insurance that is usually financed through general taxation and involves comprehensive coverage for all individuals regardless of health status or affiliation. In this case, general taxation implies that no specific earmarked tax is used. Debt relief and other sources of funds such as tolls and the sale of government

assets may also be used. Individuals are not usually required to make additional financial contributions beyond taxes. These state-funded health insurance programmes can co-exist with all other forms of health insurance, including private voluntary health insurance.

4.2. Social Health Insurance (SHI)

This is financed through payroll collected from employers and employees monthly salary. Often this contribution is mandatory for a certain group, such as government employees. The contribution of the employee and the employer may be balanced, or one may contribute more than the other. The National Health Insurance Scheme (NHIS) in Nigeria and Kenya's National Hospital Insurance Fund are examples of such mechanism which require all formal-sector employees to make a mandatory contribution, whereas individuals in the informal sector may participate voluntarily.

4.3. Community-Based Health Insurance (CBHI)

This covers a wide spectrum of programmes that share at least three attributes: not-for-profit prepayment plans for healthcare, community control, and voluntary membership. The community in question can be defined geographically. CBHI programmes are often referred to as health insurance for the informal sector, mutual health organizations, and micro-health insurance schemes (Gottret and Schieber, 2006).

4.4. Rural Community Social Health Insurance Programme

This is a non-profit health insurance programme for a cohesive group of households or individuals (community) which is run by its members. Membership comprises individuals in the community. Members of the community, based on their health needs, will choose the health care benefits. Contributions will be in cash, paid as a flat monthly rate or installment by participants. This contribution rate will depend on the health package chosen by members of the user group. A prospective participant must be a member of a community. The individual of the community comes together to form a user group. There must be a membership of at least five hundred (500) participants for each user group to ensure adequate pooling of resources.

4.5. Urban Self-Employed Social Health Insurance Programme

This is a non-profit health insurance programme covering groups of individuals with common economic activities run by their members. Individuals who are members of socially cohesive groups, which are occupation-based, are free to join the programme. The participants, based on their health needs, will choose the health care benefits. Participants will contribute a flat monthly rate. The contribution rate will depend on the health package chosen by members of the user group. A prospective participant must be a member of an already existing association. This association, together with other associations, come together to form a user group. There must be a membership of at least five hundred (500) participants for each user group to ensure adequate pooling of resources.

5. How NHIS Operates in Nigeria

An employer registers itself and its employees with the Scheme. The employer thereafter affiliates itself with NHIS-approved Health Maintenance Organizations (HMOs), who will thereafter provide the employees/contributors with a list of NHIS-approved Health Care Providers. The employee registers himself or herself and dependents' with such provider of his or her choice. The contributions made by an insured person entitle him or her, a spouse and four biological children less than 18 years of age to health benefits. The employer will pay ten (10) per cent of the basic salary while the employee will only contribute five (5) per cent of basic salary to enjoy health care benefits. A contributor has the right to change his or her primary health care provider after a minimum period of six months if he or she is not satisfied with the services being given.

Participants on the scheme are expected to register with a Health Maintenance Organization (HMO), and pay a premium to the same. The employer pays 10 per cent of the employees' basic salary while the employee contributes five per cent of his or her basic salary. The HMO would then link them up with a number of service providers (clinics) in their neighborhoods out of which they will choose their preferred clinic. The participant may decide to change the chosen clinic if at any point he is not satisfied with its services. Whenever, there is any health issue, the participant or his dependents' will just report at the clinic and they are treated without having to pay any fee, apart from the initial premium paid to the HMO. A policy usually covers a couple and four children under the age of 18 years.

The Health Care Providers are either paid by capitation or fee-for-service or per diem or case payment. Capitation is the money paid to Primary Health Provider by the HMOs on behalf of a contributor for services rendered. This payment is made regularly in advance for services to be rendered. The fee-for-service are paid to the Health Care Providers who render services on referral from other approved providers while per diem fees are payments for services and expenses per day during hospitalization (medical treatment, drugs, consumables, admission fees). Case payment is based on a single case rather than on a treatment act.

6. Concepts of Diffusion of Innovations

The concept of diffusion was first studied by the French sociologist Gabriel Tarde in late 19th century and by German and Austrian anthropologists and geographers such as Friedrich Ratzel and Leo Frobenius (Valente and Rogers, 1995). The study of diffusion of innovations took off in the subfield of rural sociology in the Midwestern United States in the 1920s and 1930s. Agriculture technology was advancing rapidly, and researchers started to examine how independent

farmers were adopting hybrid seeds, equipment, and techniques. A study of the adoption of hybrid corn seed in Iowa by Ryan and Gross (1943) solidified the prior work on diffusion into a distinct paradigm that would be cited consistently in the future. Since its start in rural sociology, Diffusion of Innovations has been applied to numerous contexts, including medical sociology, communications, marketing, development studies, health promotion, organizational studies, knowledge management, and complexity studies, with a particularly large impact on the use of medicines, medical techniques, and health communications.

In 1962, Everett Rogers, a professor of rural sociology, published his seminal work: *Diffusion of Innovations*. Rogers synthesized research from over 508 diffusion studies across the fields that initially influenced the theory: anthropology, early sociology, rural sociology, education, industrial sociology and medical sociology. According to Rogers, an innovation is an idea, product, or practice that is perceived as new by the individual or system that is considering adoption. According to him, new innovation does not have to be an actual new idea, product, or practice; rather, it just has to be considered new by the potential adopter. Newness also goes beyond knowledge of the product. An individual could have knowledge of the product but not consider it a viable option for themselves and have no feelings one way or another toward the innovation.

7. Theoretical Review

This study discusses two relevant theories - diffusion of innovation and cognitive dissonance.

7.1. Diffusion of Innovation Theory (DOI)

Diffusion of Innovation (DOI) theory, developed by Everett M. Rogers in 1962, is one of the oldest social science theories. It originated in communication to explain how, an idea or product gains momentum and diffuses (or spreads) through a specific population or social system overtime. The end result of this diffusion is that people, as part of a social system, adopt a new idea, behavior, or product. Adoption means that a person does something differently than what they had previously been doing or purchase or use a new product, acquire and perform a new behaviour according to LaMorte, (2016). The key to adoption is that the person must perceive the idea, behavior, or product as new or innovative. It is through this that diffusion is possible. The five main factors that influence adoption of an innovation are:

- Relative Advantage - The degree to which an innovation is seen as better than the idea, programme, or product it replaces.
- Compatibility –This is the degree of consistency of the innovation which is in the values, experiences, and needs of the potential adopters.
- Complexity –This is the difficulty to use and understand the innovation.
- Trialability - The extent to which the innovation can be tested or experimented with before a commitment to adopt is made.
- Observability - The extent to which the innovation provides tangible results.

7.2. Cognitive Dissonance Theory (CDT)

Almost half a century ago social psychologist Leon Festinger developed the cognitive dissonance theory (Festinger, 1957). The theory is somewhat counter intuitive and, in fact, fits into a category of counter intuitive social psychology theories sometimes referred to as action-opinion theories. The fundamental characteristic of action opinion theories is that they propose that actions can influence subsequent beliefs and attitudes. This is counterintuitive in that it would seem logical that our actions are the result of our beliefs/attitudes, not the cause of them. However, on further examination these types of theories have great intuitive appeal in that the theories, particularly cognitive dissonance, address the pervasive human tendency to rationalize.

8. Empirical Review

Many researchers have acknowledged the special relevance of perception in influencing decision-making and ultimately the innovation diffusion process (Rogers, 2005). In this respect, the attributes of the innovation serve as key variables that play a critical role in determining the rate of adoption of innovation. Berwick (2003) opined that for those people who reject or accept an innovation, benefit is a relative matter of the balance between risks and gains. He was of the opinion that perceptions about an innovation is attributes directly affected uncertainty a decision-maker might hold which in turn shapes the innovation-decision might hold which in two shapes the innovation-decision and possibly adoption of the innovation.

A broad review of empirical in diffusion of innovation suggests that the level of diffusion of an innovation depends more on its characteristics than either of the two influencing factors such as communication channels and incentives system as contained in the work of Aksarany, 2009, Boushey, 2010, Richerson 2001, and Berwick, 2003. There are some dissenting voices that argue against this model of the structural role of innovations according to Aksarany (2009) place less emphasis on the role of knowledge and innovation rather than on macro-level spatial characteristics of the society. Diffusion of innovation has been applied beyond its original domains. Spheres such as engineering, medicine, information systems, banking and so on have been used to justify the Diffusion of Innovation theory (DOI) (Rogers, 1995, Horton, Buck, Waterson and Clegg, 2001), smart card readers (Plouffe, Hulland and Vandenbosch, 2001), information systems processes (Mustonen-Ollilial and Lyytinen, 2003) and internet banking (Gerrard and Cunningham, 2003); Kolodinsky, Hogarth and Hilgart(2004); Tan and Teo(2000).

9. Research Questions

The research question asked was to what extent does diffusion of innovation attributes jointly affect the attitudes of healthcare consumers in Oyo State, Nigeria?

9.1. Hypotheses

The only hypothesis formulated for this study was:

- H01– Diffusion attributes (relative advantage, compatibility, complexity, trialability and observability) do not jointly predict healthcare consumer's attitudes on the adoption of National Health Insurance Scheme (NHIS) among the healthcare consumers in Oyo State, Nigeria.

9.2. Scope of the Study

The study area of this research was Oyo State, Nigeria. Oyo state is an inland state in the South-Western Nigeria with its capital in Ibadan. It is bounded in the North by Kwara State, in the East by Osun State, in the South by Ogun State and in the West partly by Ogun State and partly by the Republic of Benin. It was created on 3rd February 1976. Oyo State covered approximately an area of 28,454 square kilometers and is ranked 14th by size with a population of 5,580,894 million according to 2006 population census. It has the first university in Nigeria in 1948. The other universities are Lead City University, Ibadan, Ajayi Crowther University Oyo and Ladoke Akintola University of Technology, Ogbomosho. The choice of Oyo State Nigeria was as a result of the presence of federal and state government institutions and organized private companies. These institutions are the starting point of the implementation of the NHIS programme in Nigeria. The study is restricted to workers of federal institutions, organized private sectors and self-employed individuals in Oyo State, Nigeria who are above the age of eighteen. This is because the federal agencies are the starting point of this new innovation in healthcare services in Nigeria and it had also recorded an appreciable level of success since its inception and it had covered 98% of federal government employees throughout the country. The selection of the federal institutions was employed to give room for proper, adequate and true representation of the entire population. Oyo State workers were not included in the study because Oyo State Health Insurance Agency (OYSHIA) was established in 2015 and passed into law in November 2016 and were flagged off in May 2017 as the collection of data were in advance stage (Chioma, 2019).

10. Research Design

This research adopted descriptive survey research design which involved random selection of the samples from the study population. This descriptive survey design allowed for random sampling and use of questionnaires.

A self-developed structured questionnaire was adopted. The structured questionnaire contained questions whose answers enabled the researcher to get detailed information from respondents about the attitudes of healthcare consumers in Oyo

State, Nigeria towards the adoption of National Health Insurance Scheme (NHIS). The 27-item questionnaire was divided into seven sections, these are: Section A, B, C, D, E, F and G. Section A of the questionnaire was designed to obtain respondents' demographic information such as gender, marital status, age, educational background and occupation while Section B, C, D, E and F contained information on perceived relative advantage, compatibility, complexity, trial-ability and observability which are the attributes of innovation that contribute to the adoption of National Health Insurance Scheme (NHIS) by healthcare consumers in Oyo State, Nigeria. The question was anchored on a 5-point Likert scale ranging from "Strongly Agreed" to "Strongly Disagreed". Section G of the questionnaire was designed to measure the attitudes of healthcare consumers of Oyo State, Nigeria. Six items were used to measure the attitudes of healthcare consumers in Oyo State, Nigeria. These items were anchored on a 5-point Likert scale ranging from "Strongly Agreed" to "Strongly Disagreed".

The instrument used by the researcher to collect information from the respondents was the questionnaire. The questionnaire was developed based on the research questions and it logically followed the sequence of diffusion of innovations (relative advantage, compatibility, complexity, trialability and observability) as formulated by Rogers. The questionnaire was developed based on the research questions and it logically followed the sequence of diffusion of innovations (relative advantage, compatibility, complexity, trialability and observability) as formulated by Rogers. A 3-member research team headed by the researcher himself and assisted by two other research assistants personally delivered questionnaires to the respondents but completed by each respondent without interference from the researchers. The relevant secondary data were sourced from the official Handbook of National Health Insurance Scheme (NHIS), newspapers, journals, textbooks and internet. Data collected were analyzed using both descriptive and inferential statistics. The analytical tools through Statistical Package for Social Sciences (SPSS) were employed to exhibit the magnitude of the attributes of innovations on the attitude of healthcare consumers in the adoption process of the NHIS.

11. Population and Sample Size of the Study

The population of the study was 45,000. This comprised the workforce (employees) of the federal institutions namely: University of Ibadan, Ibadan, Federal School of Forestry, Ibadan, Federal College of Animal Health and Production Technology Ibadan, Federal College of Education (Special) Oyo, Federal School of Survey, Oyo and one international company based in Ibadan, Nigeria Bottling Company. These categories of employees represented federal institutions/agencies and organized private sectors that constituted the formal sector of the economy which have adopted National Health Insurance Scheme in their various establishments.

| | Institutions/Agency/Company | Population | Sample Size |
|---|---|-------------------|---|
| 1 | University of Ibadan, Ibadan, Oyo State, Nigeria | 20,000 | $\frac{20,000 \times 2.58 + 0.01^2 (1 - 0.50)}{20,000 \times 0.01 + [2.58 \times 0.50 (1 - 0.50)]}$ = 51,600.0005 200.645 = 257 |
| 2 | Federal School of Forestry Research and Training, Ibadan, Oyo State, Nigeria | 7,000 | $\frac{7,000 \times 2.58 + 0.01^2 (1 - 0.50)}{7,000 \times 0.01 + [2.58 \times 0.50 (1 - 0.50)]}$ = 18,060.0005 70.645 = 255 |
| 3 | Nigeria Bottling Company, Ibadan, Oyo State, Nigeria | 3,500 | $\frac{3,500 \times 2.58 + 0.01^2 (1 - 0.50)}{3,500 \times 0.01 + [2.58 \times 0.50 (1 - 0.50)]}$ = 9,030.0005 35.645 = 253 |
| 4 | Federal College of Education (Special) Oyo, Oyo State Nigeria. | 6,000 | $\frac{6,000 \times 2.58 + 0.01^2 (1 - 0.50)}{6,000 \times 0.01 + [2.58 \times 0.50 (1 - 0.50)]}$ = 15,480.0005 60.645 = 255 |
| 5 | Federal College of Animal Health and Production Technology Ibadan, Oyo State, Nigeria | 5,000 | $\frac{5,000 \times 2.58 + 0.01^2 (1 - 0.50)}{5,000 \times 0.01 + [2.58 \times 0.50 (1 - 0.50)]}$ = 12,900.0005 50.645 = 254 |
| 6 | Federal School of Survey, Oyo, Oyo State, Nigeria | 3,500 | $\frac{3,500 \times 2.58 + 0.01^2 (1 - 0.50)}{3,500 \times 0.01 + [2.58 \times 0.50 (1 - 0.50)]}$ = 9,030.0005 35.645 = 253 |
| | Total | 45,000 | 1,527 |

Table 1: Population and Sampling Size of the Study

Source: Researcher's Compilation (2016)

The sample size was determined by using Paler-Calmorin and Calmorin (2007) formula to determine the sample size from the population as follows:

$$Ss = \frac{NV + [Se^2 (1-p)]}{NSe + [V^2 p (1-p)]}$$

Where Ss = Sample size

N = Total number of population

V = Standard value (2.58) at 1% level of probability 0.99 reliability

Se = Sampling error (0.01)

p = Largest possible proportion (0.50)

12. Test of Hypothesis

| Model | Sum of Squares | Df | Mean Square | R | F | R ² | Adj. R ² | Sig. |
|------------|----------------|------|-------------|------|-----------|----------------|---------------------|------|
| Regression | 116846.927 | 5 | 23369.385 | | | | | |
| Residual | 903.530 | 1521 | 0.594 | .996 | 39339.954 | .992 | .992 | .000 |
| Total | 117750.457 | 1526 | | | | | | |

Table 2: Multiple Regression Analysis of Diffusion of Innovation on NHIS Adoption

Among Healthcare Consumers in Oyo State, Nigeria

Source: Field Survey (2016)

a. Predictors: (Constant), Observ, Comp, Tria, Complex, Reladv

b. Dependent Variable: Adoption Ofnhis

As shown in Table 2, the overall significance was tested with the help of ANOVA and multiple regression analysis. The entire model as measured by the F-statistic demonstrates that the calculated F-stat. which is 39339.954 is statistically significant at 0.01. The estimated value of R² value of 0.992 signifies that about 99.2% of the variation in healthcare consumers' attitude toward the adoption of NHIS in Oyo State, Nigeria is accounted for by the attributes of diffusion of innovation (relative advantage, compatibility, complexity, trialability and observability). The adjusted R² also shows that the dependent variable (attitude of health consumers) is also affected by 99.2% of the independent variables (relative advantage, compatibility, complexity, trialability and observability). It shows that relative advantage, compatibility, complexity, trialability and observability jointly contributed to the adoption of NHIS. The result shows that the attributes of diffusion of innovation are good predictors of adoption of NHIS.

| Model | Unstandardized Coefficient | | Standardized Coefficient | T | P.value | R | R ² | Adj. R ² | F | Sig |
|------------|----------------------------|------------|--------------------------|---------|---------|-------------------|----------------|---------------------|---------|------|
| | B | Std. Error | Beta Contribution | | | | | | | |
| (Constant) | -.059 | .064 | | -0.916 | .360 | .996 ^a | .992 | .992 | 6596.68 | .000 |
| Reladv. | -.686 | .029 | .526 | -23.440 | .000 | | | | | |
| Comp. | .368 | .026 | -.101 | .264 | .000 | | | | | |
| Complex. | -.190 | .030 | -.101 | -6.245 | .006 | | | | | |
| Tria. | 1.1195 | .026 | .742 | 45.244 | .000 | | | | | |
| Obsv. | 1.285 | .041 | .631 | 31.700 | .000 | | | | | |

Table 3: Multiple Regression Analysis of Joint Prediction of Diffusion Attributes (Relative Advantage Diffusion of Innovation, Compatibility, Complexity, Trialability and Observability) on the Adoption of National Health Insurance Scheme (NHIS) (N=1527)

Source: Field Survey (2016)

The result in Table 3 shows the relative contribution of each of the independent variables (relative advantage, compatibility, complexity, trialability and observability) on the adoption of NHIS among healthcare customers in Oyo State. The results revealed that relative advantage ($\beta = -.526$, $p < .05$) and complexity ($\beta = -.101$, $p < .05$) had negative contribution on attitude of healthcare customers in adopting NHIS while compatibility ($\beta = .264$, $p < .05$), trialability ($\beta = .742$, $p < .05$) and observability ($\beta = .631$, $p < .05$) have positive contribution on attitude of healthcare customers in using NHIS in Oyo State. Therefore, among the five relative diffusion attributes, compatibility, trialability and observability positively contributed to the attitude of healthcare customers in using NHIS while relative advantage and complexity as an attribute of diffusion of innovation has a negative contribution to healthcare consumers of NHIS in Oyo State.

| Model Summary | | | | | | | | | |
|---------------|-------------------|----------|-------------------|----------------------------|-------------------|-----------|-----|------|---------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .996 ^a | .992 | .992 | .77074 | .992 | 39339.954 | 5 | 1521 | .000 |

Table 4: Regression

a. Predictors: (Constant), Relative Advantage, Compatibility, Trialability, Complexity, Observability

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|------|-------------|-----------|-------------------|
| 1 | Regression | 116846.927 | 5 | 23369.385 | 39339.954 | .000 ^b |
| | Residual | 903.530 | 1521 | .594 | | |
| | Total | 117750.457 | 1526 | | | |

Table 5: ANOVA^a

a. Dependent Variable: AdoptionOfNHIS

b. Predictors: (Constant), Relative Advantage, Compatibility, Trialability, Complexity, Observability

Table 4 further revealed that the joint predictions of diffusion attributes on adoption of NHIS among healthcare customers which was significant at 0.05 level of significance ($F(5, 391) = 39339.954$; $R = .996$, $R^2 = .992$, $Adj. R^2 = .992$; $P < .05$). Statistically, R^2 value of 0.992 signifies that 99.2% of the variation in the adoption of NHIS by healthcare customers in Oyo State accounted for the diffusion attributes of innovation: relative advantage, compatibility, complexity, trialability and observability. This implies that other factors such as educational level, age, gender and marital status accounted for the remaining 1.2%. This implies that other factors such as educational level, age, gender and marital status accounted for the remaining 0.8%. Therefore, diffusion attributes of innovation: relative advantage, compatibility, complexity, trialability and observability are good predictors of attitude of healthcare customers towards NHIS. When NHIS is accessible, affordable, reliable, good quality and compatible with customers' lifestyle, socio-cultural beliefs and values; healthcare consumers will access it with a high degree level of adoption.

13. Discussion of Findings

This study found evidence to support Rogers' Theory of Diffusion of Innovation (DoI). The test of the hypothesis showed that the attributes of diffusion as a whole given from the result of the F-test in which the p-value of 0.000 is significant at 0.05 level as shown in table 5. Hence H_0 was rejected. This implies that at any given point in time, the adoption of NHIS by healthcare consumers' is determined by the interaction of the five attributes (relative advantage, compatibility, complexity, trialability and observability) of diffusion of innovation.

Findings also revealed that most healthcare consumers in Oyo State are satisfied and have adequate knowledge and favourable attitude towards NHIS. These enabled them to be more comfortable and feel confident in using NHIS to improve their personal health. This finding is consistent with Asiegbu and Nwakama (2015) who found out that for a user to adopt an innovation, factors such as speed, ease of use, security, availability, effectiveness, socio-economic, convenience and so on must be combined. Each of the combinations that are related with the innovation attributes (relative advantage, compatibility, complexity, trialability and observability) must be exhibited by healthcare consumers to a certain degree of satisfaction to adopt NHIS in Oyo State, Nigeria. Dadwal (2012) revealed in his finding that health innovations possess distinct attributes (relative advantage, compatibility, complexity, trialability and observability) that shape the way decision-makers process information in the innovation-process adoption. Rogers; Sahin concluded that the availability of all the innovation attributes (relative advantage, compatibility, complexity, trialability and observability) speed up the innovation-diffusion process.

Furthermore, a multiple regression analysis was used to examine the joint effect of diffusion attributes on the adoption of NHIS among healthcare customers in Oyo State. Finding of the hypothesis revealed that the relative diffusion attributes such as compatibility, trialability and observability contributed positively to the attitude of healthcare customers in using NHIS while relative advantage and complexity contributed negatively to attitudes of healthcare customers in using NHIS in Oyo State. The finding is supported with the study of Parisot (1997) that role modeling or peer observation is the key motivational faction in the adoption and diffusion of any new idea be it a product or technology.

14. Conclusion

Diffusion is the process by which an innovation (new idea, product, practice or service) is communicated through certain channels over time among members of a social system. Previous research had shown that perceived attributes of the innovation have explained 49 to 87% of the variance in rate of adoption (Goldman, 1994). Studies of perceived attributes have included several attributes, or characteristics, that have been used to predict the rate of adoption. Most studies of the attributes of diffusion of innovations include five core attributes: relative advantage, compatibility, complexity, trialability, and observability. Janardhanam, Sinha and Babu found the five attributes correlated to the adoption of innovations. This was in agreement with the findings of the researcher. It can be concluded that these factors did influence healthcare consumers' attitudes toward the adoption of NHIS in Oyo State, Nigeria.

Other studies have included perceived attributes other than the five listed above included flexibility, reversibility, cost-efficiency, and risk. Dearing and Meyer included economic advantage, effectiveness, reliability, divisibility, applicability, commutuality, and radicalness. Moore and Benbasat added image and voluntariness to the perceived attributes of an information technology innovation (Kolbe & Iverson, 1981). Rogers recommended limiting attributes to the five core characteristics, arguing that they were conceptually distinct, supported by the literature, and allowed for maximum generality across studies of perceived attributes (More & Benbasat, 1991).

Diffusion researchers also believed that a population can be broken down into five different segments based on their propensity to adopt a specific innovation: innovators, early adopters, early majorities, late majorities and laggards. Based on the summary of findings, it is concluded that the interaction and combination of the attributes of diffusion (relative advantage, complexity, compatibility, trialability and observability) will always affect consumers' adoption of the National Health Insurance Scheme (NHIS) in Oyo State, Nigeria. The combination of these attributes must meet healthcare consumer's expectation and their specific needs for the diffusion of innovation to be properly adopted.

15. Recommendations

On the basis of the summary of findings and conclusion, the following recommendations are suggested:

- It was observed that only the federal agencies (ministries, departments and agencies) and public sector are covered by the Scheme. This limits its scope and coverage. More awareness should be created and intensified to cover the private sectors of the economy most especially for the poor and the informal sectors to build up a sizeable number of contributors.
- In addition to the above, government at all levels (federal, states and local governments) should enforce compulsory registration of all and sundry to ensure that everybody is fully covered to benefit from the Scheme. This will promote equal access to quality healthcare services and reduce the out-of-pocket for healthcare consumers in Oyo State, Nigeria. This is particularly necessary to capture the informal sector of the economy which contributes the largest chunk of healthcare consumers.
- The State governments in Nigeria who are yet to start the National Health Insurance Scheme should be encouraged to start-off the Scheme in their various states so that their citizens should enjoy quality healthcare services and reduce out-of-pocket expenses of the people.
- From the research finding, the combinations of attributes (relative advantage, compatibility, complexity, trialability and observability) affect the healthcare consumers' adoption of National Health Insurance Scheme positively. Hence, governments and organizations involved should make use of the attributes to improve and increase the adoption rate of NHIS in Oyo State.
- It is also recommended that for the National Health Insurance Scheme to be fully adopted by healthcare consumers; their lifestyles, values, needs, socio-cultural and beliefs, confident, comfort, knowledge and favourable disposition towards NHIS should be strongly considered by healthcare practitioners in the adoption of NHIS in Oyo State, Nigeria.

- In order to create future that is different from the past in the healthcare systems, according to Juran, (1981), the innovation attributes should be considered on its merit to make the diffusion process increase among the healthcare consumers in Oyo State, Nigeria.

16. References

- i. Aksrany, D. (2009). Innovation Generation and Innovation. Social Service Research Network: Working Paper Series Retrieved September 2016 from <http://papers.ssrn.com/so13/papers.cfm?>
- ii. Asiegbu, B. C., Nwakama, J. C. and Etus, C. (2015). Automated teller machine (ATM) adoption and diffusion theory in selected banks in Owerri, Imo State, Nigeria. University of Mauritius Research Journal, Vol.21. <http://www.researchgate.net/publication/310607658>
- iii. Chioma, O. (2019). Oyo sets pace in mandatory health insurance: Health News, Vanguard Newspapers.
- iv. Dadwal, V. (2012). The Diffusion of Health Innovations from developing to developed countries. Research paper submitted to the Graduate School of Public and International Affairs, University of Ottawa, Canada.
- v. Dutta, A. and Hongoro, C. (2013). Scaling up NHIS in Nigeria: learning from case studies of India, Colombia, and Thailand. Health Policy Project. USAID, Washington, DC: Futures Group.
- vi. Edeh, J. N. and Udoikah, J. M. (2015). National Health Insurance Scheme and Healthcare administration in Nigeria: An assessment. International Journal of Science and Research (IJSR), ISSN (Online) 2319-7064.
- vii. Ekman, B. (2007). The impact of health insurance on outpatient utilization and expenditure: Evidence from one middle-income country using national household survey data. Health Research Policy Systems, No 5 p.6
- viii. Goldman, K. D. (1994). Perceptions of innovations as predictors of implementation levels: diffusion of a nationwide health education campaign. Health Education Quarterly 21(4), 433-444. <http://journals.sagepub.com>
- ix. Hoerup, S. L. (2001). Diffusion of an innovation: Computer technology integration and the role of collaboration. Digital dissertations. Doctoral dissertation, Virginia Polytechnic Institute and State University. Pro Quest. Digital Dissertation.
- x. Holloway, R. E. (1977). Perceived attributes of an innovation. Syracuse University Project Advance <https://www.researchgate.net>
- xi. Ibiwoye, A. and Adeleke, I. A. (2008). Does Insurance Promote Access to Quality Healthcare? Evidence from Nigeria. The Geneva Papers 33(2) 219-233.
- xii. Janardhanam, K., Sinha, R. and Babu, V. S. (2011). Adoption of new technology in B-School: An analytical study of Bangalore. Paper presented at International Conference of the Association for Technology and Business Management (CTBM-11), March 2011, Dubai: SZABIST. Available at: <http://www.trikal.org/ictbm11/ProgrammeBulletin/Programme Bulletin.pdf>.
- xiii. Juran, J. M. (1981). Quality improvement: Leader's manual and participant workshop Wilton, Conn, Juran Institute, Inc.
- xiv. Kaminski, J. (2011). Diffusion of innovation theory: theory in nursing informatics column. Canadian Journal of Nursing Informatics, 6(2). <http://cjni.net/journal/?p=1444>
- xv. Kolbe, L. J. and Iverson, D. (1981). Implementing comprehensive health education: Educational innovations and social change. Health Education Quarterly. 8(1):57-80.(1981).
- xvi. Palmer-Calmorin & Calmorin, M. A. (2007). Research Methods and Thesis Using (Ce-Book:EPUB) ISBN 978-971-23-4927-0
- xvii. Moore, G. C. and Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. Information Systems Research, 2(3), 192-222.
- xviii. Okafor, N. I. and Anigbogu, K. C. (2014). National Health Insurance Scheme and sustainable development in Nigeria: A critical appraisal. International Journal of Health and Social Inquiry Vol.2 (1) pp 136-137.
- xix. Olatokun, W. M. and Igbiniedion, L. J. (2009). The adoption of Automated Teller Machines in Nigeria: An application of the theory of diffusion of innovation. Issues in Informing Science and Information Technology Vol.6, 373-393.
- xx. Oluwatayo, I. B. (2008). Explaining inequality and welfare status of households in rural Nigeria: Evidence from Ekiti. Humanity Social Science Journal 3(1) 70-80. [http://www.idosi.org/hssj/3\(1\)08/9.pdf](http://www.idosi.org/hssj/3(1)08/9.pdf)
- xxi. Omokhodion, F. O. and Omokhodion, S. I. (2004). Health status of working and non-working school children in Ibadan, Nigeria. Journal of Annual Tropical Paediatrician International Child Health, Vol.24 (2), (2004). 175-178 DOI 10.1179/027249304225013457www.ingentaconnect.com/content/maney/atp/2004/00000024/00000002art00009
- xxii. Onyedibe, K. I., Goyit, M. G. and Nnadi, N. E. (2012). An evaluation of the National Health Insurance Scheme (NHIS) in Jos, a North-Central Nigeria City. Global Advanced Research Journal of Microbiology,
- xxiii. Rogers, E. M. (1962). Diffusion of innovation. 1st ed. New York, Free Press of Glencoe, CCLC 254636.
- xxiv. Rogers, E. M. (1983). Diffusion of Innovation. 3rd ed. New York, Free Press of Glencoe.
- xxv. Rogers, E. M. (1995). Diffusion of Innovations 4th edition. 4th ed. New York, The Free Press, 10020. pp. 212-245.
- xxvi. United Nations Population Fund, The state of the world's midwifery
- xxvii. United Nations Population Fund, The state of the World's Midwifery." <http://www.unfpa.org/sowmy/report/home.html> (2011). retrieved June 5, (2012).

- xxviii. Vanguard Newspaper, Wednesday March 6 (2019). Oyo State sets pace in mandatory health insurance. Chioma, Obinna, Feature Editor.
- xxix. Wikipedia, www.en.org/wiki/oyostate (2016). Retrieved November 20, 2016.
- xxx. Wikipedia. https://en.wikipedia.org/wiki/Frugal_i. Retrieved November 20, 2016.
- xxxi. World Health Organization (2016). Innovation <http://www.who.int/topics/innovation/en/>. Retrieved 15 September 2016. (2016).
- xxxii. World Health Organization. Nigeria: Country Status Report, (2005). p.4.